



Direct and Indirect Costs Associated With the Management of Dermatomyositis and Polymyositis

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Introduction

- Dermatomyositis (DM) and polymyositis (PM) are rare autoimmune inflammatory myopathies characterized by muscle weakness and multiple extra-muscular manifestations that have a detrimental impact on patients' lives. DM and PM require complex management that may lead to high costs and healthcare resource utilization (HCU), but the true economic impact on healthcare systems is not well understood. The goal of our study was to systematically review and summarize evidence on economic burden of DM and PM in adult patients.

Methods

- A systematic literature review (SLR) was conducted in MEDLINE and Embase to identify studies in children and adults with DM and PM, published in English between Jan 1, 2011, and Apr 28, 2021. Studies enrolling at least 10 patients were included, irrespective of country or region. The current poster summarizes data on direct and indirect costs and HCU in adults with DM and PM.

Results

- The SLR yielded 222 studies described in 229 publications. Sixteen studies evaluated HCU¹⁻¹⁶, direct or indirect costs in adult patients with DM and PM (Figure 1). The majority of studies were retrospective analyses of large nationwide databases from the US (Figure 2).

Figure 1. PRISMA diagram

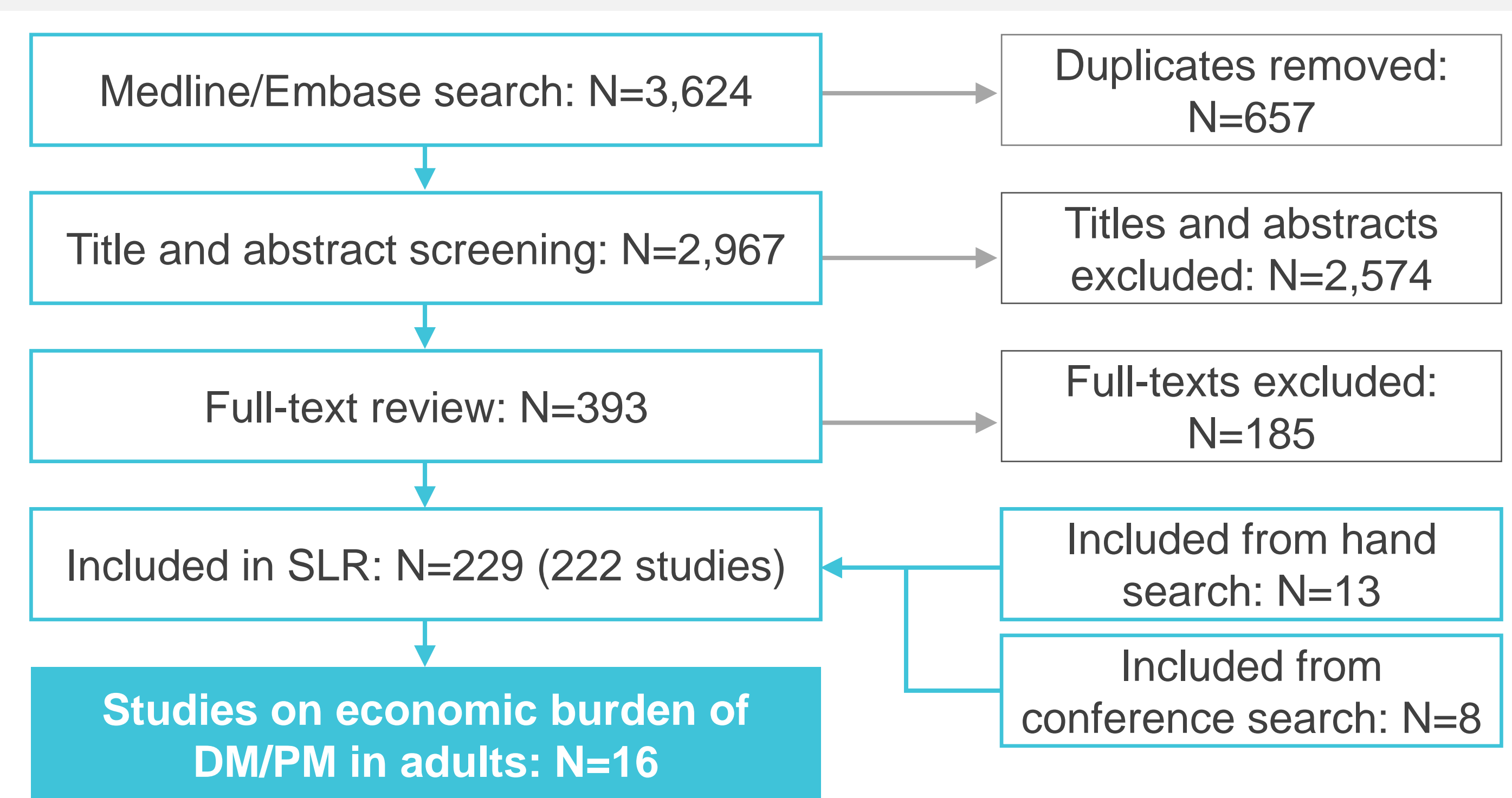
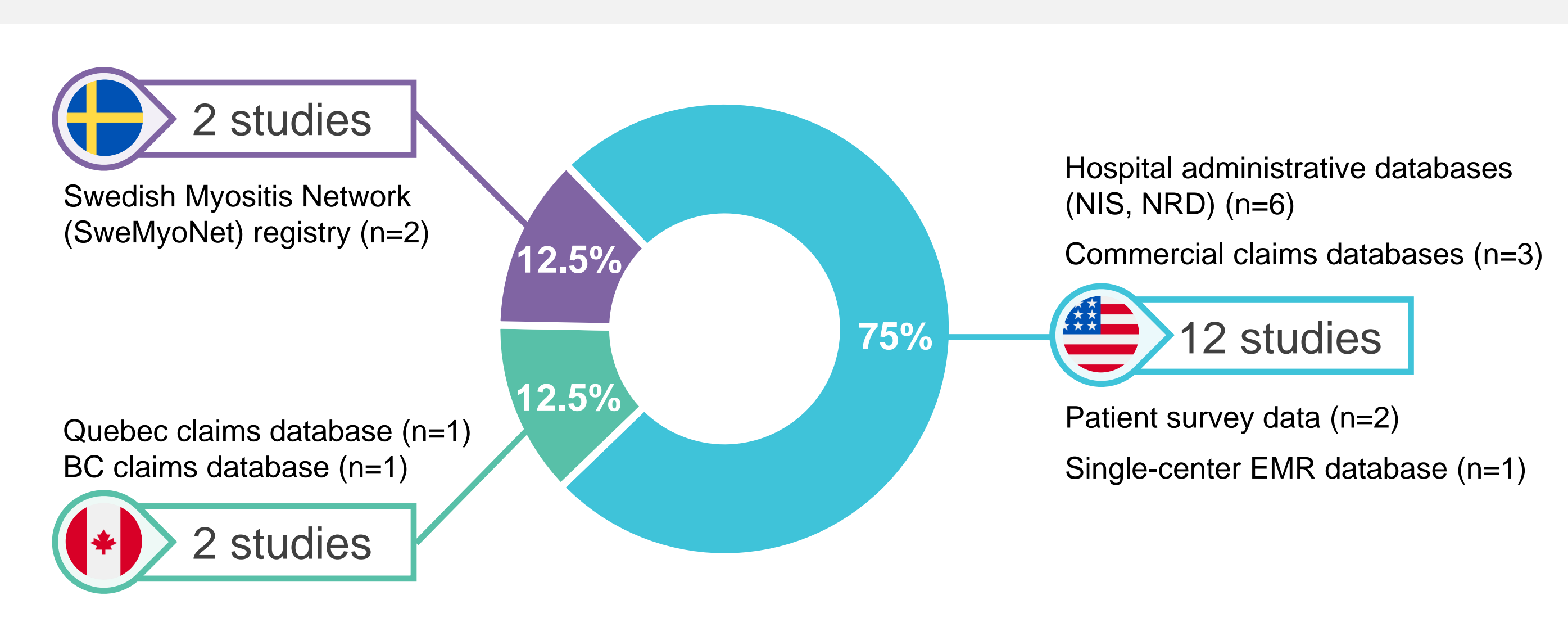


Figure 2. The majority of studies on the economic burden of DM and PM in adult patients were conducted in the US



HCU and direct costs of DM and PM management in the US

- DM and PM were associated with substantial costs and HCU in the outpatient setting. Compared to age-gender and comorbidity matched controls, adult patients with DM and PM had a significantly higher HCU (Table 1). Over half of outpatient visits were related to DM and PM.¹
- In the inpatient setting, DM and PM patients required 1.7 to 1.9-day longer length of stay (LOS) ($p < 0.05$)^{7,10,11} and more specialized HCU to patients without DM and PM¹¹ (Table 1). Mean total 2014-inflation adjusted hospitalization charges to payers were 55,774 USD/hospitalization, which was 13,351 USD higher compared to non-DM and PM inpatients ($p < 0.01$).¹¹ Total 2014-inflation adjusted cost of hospitalization of DM adults was 168 million USD with mean cost being 53% higher than in non-DM inpatients ($p < 0.0001$).⁷

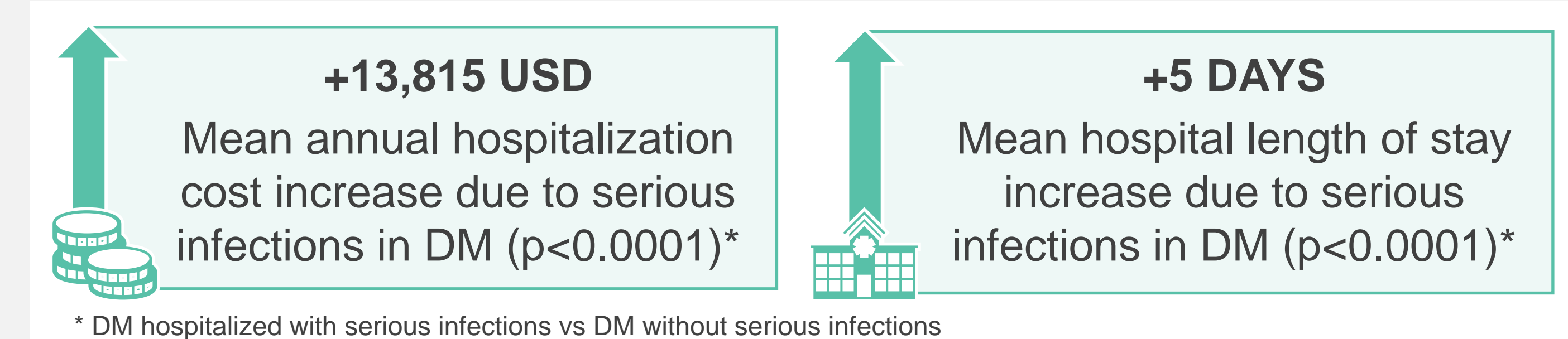
Results (cont'd)

Table 1. Outpatient and inpatient HCU in DM and PM adult patients was significantly higher than in non-DM/PM controls

Comparison	Outcome	HCU increase due to DM/PM
Outpatient setting DM/PM vs matched controls without DM/PM*	Medical visits/year ¹	+7.4 ($p < 0.001$)
	Prescriptions/year ¹	+4.7 ($p < 0.001$)
	Dermatologist visits/year ¹⁴	+4 ($p < 0.001$)
	Rheumatologist visits/year ¹	+1.2 ($p < 0.001$)
	Inpatient admissions/year ¹	+1.1 ($p < 0.001$)
	Physical therapist visits/year ¹	+1.1 ($p < 0.001$)
	Neurologist visits/year ¹	+0.4 ($p < 0.001$)
	ED visits/year ¹	+0.2 ($p < 0.001$)
Inpatient setting DM/PM vs controls without DM/PM ¹¹	ICU admission during IP stay	OR=1.94 ($p < 0.01$)
	Tomography scan during IP stay	OR=1.90 ($p < 0.01$)
	MRI scan during IP stay	OR=1.68 ($p < 0.01$)
	Angiography during IP stay	OR=1.15 ($p < 0.01$)

* Age, gender, comorbidities, region, year of index hospitalization, baseline HCU matched controls (propensity score matching).

Figure 3. Serious infections in DM significantly increased hospital costs and LOS compared to adult DM inpatients without serious infections¹⁶

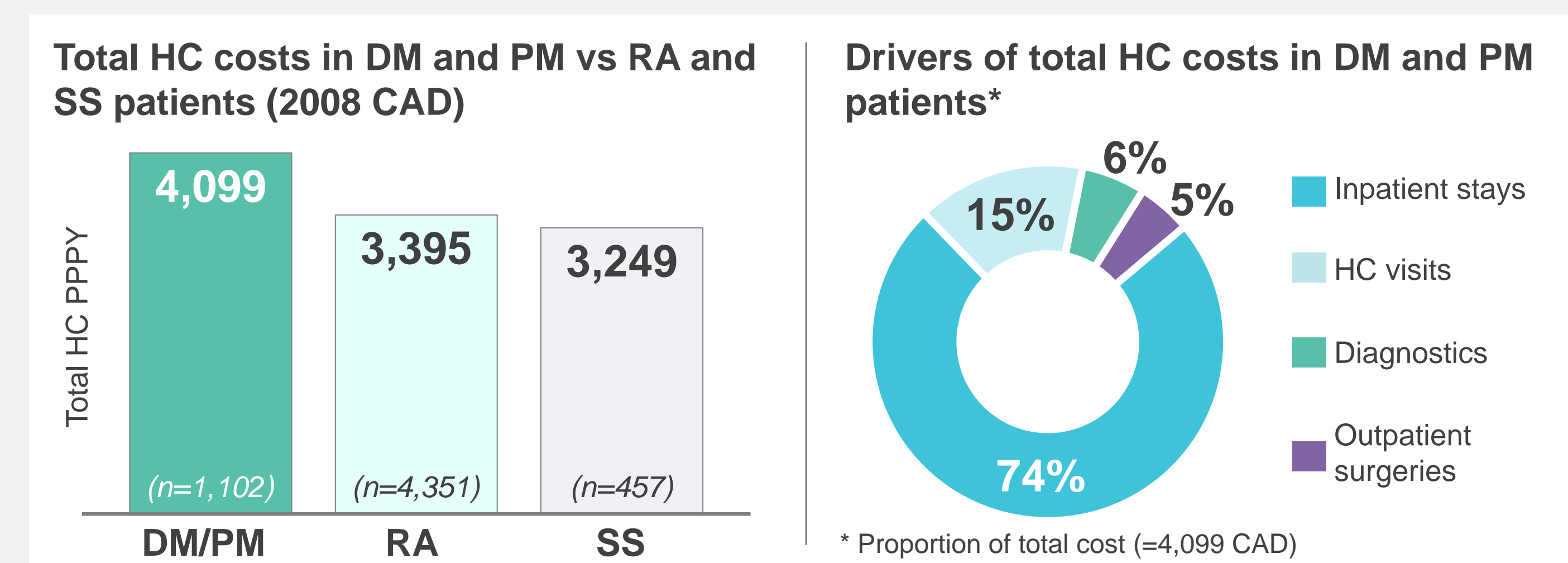


* DM hospitalized with serious infections vs DM without serious infections

Direct costs of DM and PM management in Canada

- An analysis of Quebec claims data from 1989 to 2003 suggested that annual total healthcare cost in 2008 Canadian dollars (CAD), including comorbidities, in DM and PM may exceed rheumatoid arthritis (RA) and systemic sclerosis (SS) with hospitalizations being the key cost driver (Figure 4).⁴

Figure 4. Total HC costs in DM and PM adults were higher compared to patients with RA or SS and were driven by hospitalizations costs



Indirect costs due DM and PM in Sweden and US

- In the US, adult DM and PM patients had 2 days more of work loss/year on average than matched controls without DM or PM ($p < 0.001$).¹ Productivity loss was associated with disease flare frequency ($p < 0.001$).²
- In Sweden, 33% of DM and PM patients had poor ability to work according to the total score in the Work Ability Index. After median of 14.2 years of disease duration, 21% of patients had permanent inability to work for at least 2 years.¹³

Conclusions

- Current management of DM and PM has incurred substantial consumption of healthcare resources and costs to the healthcare systems. The significant economic burden despite currently available treatments suggests that there is a high unmet need for a more effective therapy for DM and PM.

Author Disclosures and Acknowledgements

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Abbreviations: CAD, Canadian dollar; DM, dermatomyositis; EMR, electronic medical record; HC, healthcare; HCU, healthcare resource utilization; IP, inpatient; LOS, length of stay; NIS, National Inpatient Sample; NRD, National Readmission Database; PM, polymyositis; PPPY, per patient per year; RA, rheumatoid arthritis; SLR, systematic literature review; SS, systemic sclerosis; SweMyoNet, Swedish Myositis Network